REMARKS

This Application has been carefully reviewed in light of the Office Action mailed March 11, 2004. Claims 1-20 were pending in the Application. In the Office Action, Claims 1-20 were rejected. Claims 1-20 remain pending in the present Application.

In the Office Action, the following actions were taken or matters were raised:

SECTION 103 REJECTIONS

The Examiner rejected Claims 1-20 under 35 U.S.C. §103(a) as being unpatentable in view of U.S. Patent No. 5,319,779 issued to Chang et al. (hereinafter "*Chang*") in view of U.S. Patent No. 5,369,577 issued to Kadashevich et al. (hereinafter "*Kadashevich*"). Applicant respectfully traverses this rejection for at least the reasons discussed below.

The Manual of Patent Examining Procedure makes clear that to establish a *prima facie* case of obviousness, three basic criteria must be met:

> First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

M.P.E.P. § 2143 (citing *In re Vaeck*, 947 F.2d 488, (Fed. Cir. 1991)). Further, according to M.P.E.P. § 2143.01:

[T]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.

M.P.E.P. § 2143.01 (citing *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990)).

Applicant respectfully submit that the Examiner has failed to establish a *prima facie* case of obviousness. For example, Applicant respectfully submits that the proposed combination of references does not teach or suggest all the claim limitations, nor is there any motivation or suggestion to combine reference teachings as proposed by the Examiner. Further, the proposed combination of references teach away from the invention as claimed by Applicant.

Independent Claim 1 is directed toward a lexical search tree data structure reciting:

> a plurality of linked root nodes;
> at least one branch linked to at least one of said plurality of root nodes, each branch along with the root node to which it is linked representing at least one of a plurality of signatures, a first character of each signature being represented by one of said plurality of root nodes; and
> each branch having one or more leaf nodes linked hierarchically to one another, each leaf node representing a character in a signature.

The Examiner asserts that figure 15A, column 7, lines 45-49, and column 14, lines 58 60, of *Chang* disclose "a plurality of linked nodes" as recited by Claim 1. Applicant respectfully disagrees. Applicant reminds the Examiner that the claimed invention as a whole is to be considered as a basis for an obviousness rejection. In the Office Action, the Examiner refers to root page 58 of the three-level B-tree of *Chang* and second level pages of the B-tree of *Chang* pointed to by the root page 58 of *Chang* as each being "linked root nodes" (Office Action, page 2, section 3). However, *Chang* discloses that the identifiers S1 and CS1 of *Chang* represent a base or leaf signature and a first-level combinatorial leaf signature, respectively, and that identifiers such as CS2, CS3 and CS4 represent higher level signatures, or "parent signatures," of the leaf signatures (*Chang*, column 4, lines 63-68, column 5, lines 1-4). Thus, the root pages referenced by the Examiner in *Chang* correspond to different signature levels and, therefore, are not "linked root nodes." Additionally, with respect to the claim limitation "each branch having one or more leaf nodes" recited by Claim 1, the Examiner also refers to "the parent node 58 [representing a] branch having one or more leaf

nodes 62" (Office Action, page 3), where leaf node 62 corresponds to a second level relative to parent 58 (*Chang*, figure 15A). Thus, the Examiner is apparently identifying the same nodes in *Chang* as being both a "root node" and a "leaf node," which Applicant respectfully submits is improper. Accordingly, *Change* does not disclose or even suggest "a plurality of linked root nodes" as recited by independent Claim 1 and, for at least this reason, the rejection of Claim 1 is improper.

Additionally, Claim 1 recites "each leaf node representing a character in a signature." The Examiner refers to figure 15A, column 2, lines 10-20, and column 7, lines 63-65 of *Chang* as disclosing this limitation (Office Action, page 3). The Examiner also states that "the second level of the parent node 58 is presented as [a] branch having one or more leaf nodes 62 linked to one another . . . [e]ach leaf node represents a signature, which is represented as a character (a set of binary number)" (Office Action, page 3). Applicant respectfully disagrees. *Chang* discloses "a new signature function that encodes combinations of values rather than single values from a record, i.e., that computes a new signature based on some combination of multiple bits from the original record signature" (*Chang*, column 4, lines 59-63)(emphasis added). *Chang* also discloses that such encoding may be used to form different levels of signatures (i.e., S1, CS1, CS2, CS3 and CS4, each based on the same leaf signature)(*Chang*, column 4, lines 65-68, column 5, lines 1-4, column 6, lines 35-38, column 8, lines 58-60, column 9, lines 45-56). Additionally, Applicant specifically refers the Examiner to figure 10 of Chang which clearly discloses the computation of a base or leaf signature (S1) and a first level (CS1) combinatorial signature based on the leaf signature. Thus, each level of the *Chang* system, or each node as referred to as by the Examiner, represents an encoding of the entire signature of *Chang*, in contrast to "each leaf node representing a character in a signature" as recited by Claim 1. Accordingly, *Chang* does not disclose or even suggest that "each leaf node represent[s] a character in a signature" as recited by Claim 1 (emphasis added). In the Office Action, the Examiner refers to the above-referenced claim limitation as "[e]ach leaf node represents a signature" (Office Action, page 3); but, Claim 1 recites "each leaf node representing a character in a signature" (emphasis added). Therefore, for at least this reason also, the rejection of Claim 1 is improper.

Further, Applicant respectfully submits that there is no motivation or suggestion to combine reference teachings as proposed by the Examiner. For example, the Examiner admits that *Chang* does not disclose "a first character of each signature being represented by one of said plurality of root nodes" (Office Action, page 3). However, the Examiner further asserts that *Kadashevich* teaches that each nodes 30 of the trie is represented by a different character of a stem found in the trie (Office Action, page 3), and that it "would be obvious to a person of ordinary skill . . . to apply *Kadashevich*'s teaching of each nodes 30 of the trie represent[ing] a different character of a stem found in the trie" to *Chang* (Office action, page 3). Applicant respectfully disagrees. Without addressing the Examiner's interpretation of *Kadashevic*, Applicant respectfully submits that, as described above, *Chang* discloses "a new signature function that encodes combinations of values rather than single values from a record, i.e., that computes a new signature based on some combination of multiple bits from the original record signature" (*Chang*, column 4, lines 59-63)(emphasis added). Thus, there is no suggestion or motivation to modify *Chang* as suggested by the Examiner because the signature of *Change* is based on a combination of values and represents an encoding, at various levels, of the entire signature of *Chang*. Thus, *Chang* teaches away from the proposed combination of references as suggested by the Examiner because the signature of *Chang* is based on encoding of a combination of values of an entire signature rather than a single value or character. Accordingly, for at least these reasons also, the rejection of Claim 1 is improper.

Independent Claim 11 recites "determining a branch associated with a root node . . . corresponding to [a] hash value [for a target signature]" "said branch along with said root node representing at least one signature," and "each leaf node representing an element of said at least one signature." Independent Claim 18 recites "allocating a plurality of root nodes, one for each distinct element of said plurality of signatures," "creating a branch for [a] root node . . . having one or more leaf nodes . . . each successive leaf node representing a successive element of said signature," and "creating a twig . . . representing a substring of said signature . . . the first element of said substring being represented by a twig node." Thus, for the reasons discussed above in connection with independent Claim 1, the rejection of independent Claims 11 and 18 is also improper because the proposed combination of

references does not teach or suggest all the claim limitations of Claims 11 or 18, nor is there any motivation or suggestion to combine reference teachings as proposed by the Examiner. Further, the proposed combination of references teach away from the invention as claimed by Applicant. Therefore, Applicant respectfully requests that the rejection of independent Claims 1, 11 and 18 be withdrawn.

Claims 2-10, 12-17 and 19-20 depend respectively from Claims 1, 11 and 18. As discussed above, independent Claims 1, 11 and 18 are allowable over the cited references. Therefore, Claims 2-10, 12-17 and 19-20 that depend from respective Claims 1, 11 and 18 are also allowable, and Applicant respectfully requests that the rejection of Claims 2-10, 12-17 and 19-20 be withdrawn.

CONCLUSION

Applicant has made an earnest attempt to place this case in condition for immediate allowance. For the foregoing reasons and for other reasons clearly apparent, Applicant respectfully requests reconsideration and full allowance of all pending claims.

No fee is believed due with this Response. If, however, Applicant has overlooked the need for any fee, the Commissioner is hereby authorized to charge any fees or credit any overpayment associated with this Response to Deposit Account No. 08-2025 of Hewlett-Packard Company.

Respectfully submitted,

By: James L. Baudino
James L. Baudino
Reg. No. 43,486

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Correspondence to:
L.Joy Griebenow
Hewlett-Packard Company
Intellectual Property Administration
P. O. Box 272400
Fort Collins, CO 80527-2400
Tel. 970-898-3884